

and physical laboratories sprang up in many directions. At the present day lectures without laboratory work are a deadly anachronism, even for, or perhaps particularly for, junior men.

As a thinker, Carey Foster was somewhat hesitant in forming definitive opinions on philosophical and scientific theories. To this cause, no doubt, is due the comparative fewness of his publications. It did not seem logical to him to derive extensive theories from a few experimental observations. For this reason he postponed publication both in his own case and in that of his students. But a method of measurement was another matter, and his published extensions of Wheatstone's bridge method of measuring resistances and of the measurement of mutual inductances are remarkable for their neatness and value. His services on the Electrical Standards Committee of the British Association for the Advancement of Science, and on the Kew Observatory Committee of the Royal Society, prove the direction in which his bent really lay. His publications include an article in Watts's "Dictionary of Chemistry," and he was joint author of a text-book on electricity and magnetism. In the first edition of the latter he strove to develop the subject on the lines laid down by Maxwell, according to which the electrical actions in the æther are all-important; but in later editions he gradually yielded to the pressing claims to recognition of the very large number of new phenomena discovered in the last twenty years, which require a modification of the most extreme of Maxwell's conclusions.

In his writings Carey Foster had the mastery over a lucid and logical prose of a remarkable order. He was much sought after as a sage counsellor, for his kindly method of criticism disarmed resentment when his counsel was adverse. He lived at peace with all men, his main aim being, as expressed in his last Christmas greeting, "to do all which may achieve and cherish a just and lasting peace among ourselves and with all nations."

NOTES.

THE following announcement is made in the political notes of Tuesday's *Times*:—"Sir Watson Cheyne has been appointed chairman of the newly formed House of Commons Medical Committee, which consists of Members who possess a medical or surgical degree, or are interested in medical or scientific matters. The Committee will exchange views upon all proposed legislation which has relationship to any medical or allied question. The main object of these deliberations will be the avoidance, so far as possible, of the expression of conflicting medical or scientific views in Parliamentary debate. The Committee will also invite reports from, and hold conferences with, medical and scientific bodies. Major Farquharson is secretary to the Committee, and Sir William Whitla, Lt.-Col. N. Raw, and Capt. Elliott form the executive committee." As men of science are not sufficiently organised to secure seats for members of their own body in Parliament, they should be glad to know that members of the medical profession are willing to consider scientific as well as medical matters of national interest. We should not like to think, how-

ever, that scientific men, knowing the needs of the country and the service of progressive knowledge to civilisation, will be content to remain permanently without representation among our legislators. Medicine is only one branch of science, but, as things are at present, science is a department of medicine so far as Parliamentary action is concerned.

A VIGOROUS attack on the policy of the Board of Agriculture was made in the House of Lords last week by two noble lords, both of whom in the past have had some share in directing the operations of the department. Criticism was directed to a recent circular in which it was announced, *inter alia*, that what has been known during the war as the "ploughing policy" would no longer be actively prosecuted, and that efforts should be concentrated on improving the condition of the existing arable land rather than on adding to its area. Lord Ernle had no difficulty in parrying the attack. He pointed out that much of the increase of ploughed land had been secured at the expense of the effective tillage of the existing acreage, and that an increase in food production would be secured at least cost by thoroughly cleaning and conditioning the land already under the plough rather than by breaking up new areas of grassland at best always a speculative operation. The ideal which the President of the Board of Agriculture has set before the farming community is a modest one, merely to raise the general standard of farming to the level of that attained by the best farmers in the adjoining district. It is not generally recognised how wide is the gap indicated, but instances could be given where the value of land has been quintupled by the application of scientific knowledge without moving adjoining farmers a hair's-breadth from the ruts of their outworn practice.

A LEADING article in the *Times* of February 17 states that the Prime Minister has agreed to receive a deputation on the subject of fisheries administration. It points out that the present position of our sea fisheries is anomalous and unsatisfactory, and that the establishment of a Department of Fisheries would remedy this, giving the fishermen one special department, instead of half a dozen, to deal with; improvement in transport, a better regulation and supervision of the fisheries, and other urgent matters, would then receive attention. In relation to the alternative proposal for a Ministry of Water, the *Times* remarks that the question of the use of water-power is very remote from that of food supply, nor is it more favourably disposed towards the scheme of State control propounded by the Empire Resources Development Committee. The following reference is made to the need for scientific investigation:—"An important branch of the work of the proposed Ministry would be the organisation of scientific research into the habits and movements of fish. Although the study of marine biology and kindred subjects has made great strides in the United Kingdom in the last few years, our scientific equipment is utterly unworthy of the greatest fishing nation in the world. We have been far outstripped by the United States and by Canada, the splendid sea-fish hatcheries of which put us to shame." With the first two sentences we fully agree, but with regard to the last we may remark that the utility of hatcheries is disputed, and that we have far less reason to feel ashamed when looking at the sea-fish hatcheries of the United States than when considering what we, whose fisheries are as important as those of the rest of Europe, have to set against the marine investigations of the Norwegian Hjort, the Danes Petersen and Johannes Schmidt, and the Dutchmen Redeke and Hoek.

THE Press of February 15 contained the full text of the scheme for a League of Nations, which had been unanimously accepted the previous day by the representatives of the fourteen Powers assembled at Versailles. This alliance of free States is based on the solid foundation of the confederacy that has defeated the autocratic Empires, and Germany and her satellites will be admitted to it only if and when they give evidence that they are sincerely disposed "to observe their international obligations and conform to such principles as may be prescribed by the League in regard to naval and military forces and armaments." As to the details of the scheme, they are of the nature of a sound working compromise between the projects of those who would have created an immediate super-State like the Holy Alliance of 1815 and the projects of those who would have been content with a restoration of the nineteenth-century Concert of Europe. The new international authority is to have a real control, exercised by means of an assembly of delegates, an executive council, and a permanent secretariat. At the same time its control is so limited in time and sphere that it does not interfere much more than existing treaty obligations do with the sovereign independence of the contracting States. It contemplates and makes provision for the employment of force, if necessary, in the vindication of its decisions. It insists on the publicity of treaties, though not of the process of negotiations. It wisely rejects the impracticable project of the creation of international armies and the establishment of international control over backward races, and substitutes the incomparably saner arrangement of mandatory Powers. In sum, the scheme is a hopeful and a workable one. Its preparation and its unanimous acceptance are excellent auguries both for the future work of the Conference and for the peace of the world.

A BILL to establish a Ministry of Health and a Board of Health to exercise in England and Wales, and in Scotland, respectively, powers with respect to health and local government, was presented to the House of Commons on February 17 by Dr. Addison and read a first time. The general powers and duties of the Minister of Health will be to take all such steps as may be desirable to secure the effective carrying out and co-ordination of measures conducive to the health of the people, including measures for the prevention and cure of diseases, the treatment of physical and mental defects, the collection and preparation of information and statistics relating thereto, and the training of persons engaged in health services. It is proposed to transfer to the Ministry (1) all the powers and duties of the Local Government Board; (2) all the powers and duties of the Insurance Commissioners and the Welsh Insurance Commissioners; (3) all the powers of the Board of Education with respect to attending to the health of expectant mothers and nursing mothers and of children who have not attained the age of five years and are not in attendance at schools recognised by the Board of Education; (4) all the powers of the Privy Council and of the Lord President of the Council under the Midwives Acts, 1902 and 1918; and (5) such powers of supervising the administration of Part I. of the Children Act, 1908 (which relates to infant life protection), as have heretofore been exercised by the Secretary of State.

BRITISH war-time propaganda, as directed by various Government departments ranging from the Ministry of Information to the Ministry of Food, ended at the Armistice with a spasmodic suddenness characteristic alike of its origin and of much of its conduct during hostilities. It was about the same time that other

countries, notably the United States, redoubled their propagandist work to further the activities of peace. An example of the way in which this work is pursued by the United States was furnished by a correspondent of the *Times*, whose article appearing on February 11 described the "world's record advertising campaign" organised by the U.S. Government in South America. While the war was still in being a vigorous campaign, excelling the efforts of any other belligerent, had made South America fully aware of every phase of the United States war effort, and as a natural corollary of its plans for industrial construction, inventions, and so on. The information, supplied to newspapers free of charge and without any condition as to acknowledgment of its source, was prepared by practical newspaper men, who were well acquainted with a newspaper's need for "copy" that is exclusive, interesting, and novel. That was not all. If a newspaper wanted special information on United States industrial matters the representatives of the U.S. Public Information Committee in the large cities of South America were willing to cable for it and supply it. This is the kind of elastic and adaptable machinery which is very much wanted in Great and Greater Britain to enable the public to learn, and, above all, to make the public interested in learning, what is going on in British industries, in industrial science, discovery and invention. The Ministry of Information, joined to the Department of Scientific and Industrial Research, might have provided the machinery for some such distribution. At present the Board of Agriculture distributes leaflets and has its Journal, and the Board of Trade Journal also publishes for a public of its own. But what is needed is some organisation which, while having as its principal functions those of informing special publics at home and in the Dominions, should make it its business to get at the general public through the newspapers.

A RECURRENCE of influenza has set in over the British Isles. In the south of Ireland the renewed outbreak is said to be of a virulent type, and is particularly severe in parts of Kerry and Cork. The Registrar-General's return for the week ending February 8 shows a marked increase in the deaths from the epidemic, the number for the County of London being 100, which is greater than in any of the preceding six weeks. In the ninety-six great towns of England and Wales, including London, the deaths from influenza were 604, which is also greater than in any of the six preceding weeks. The deaths from pneumonia in London were 182, and from bronchitis 226, which is more than in any of the preceding nine weeks. For the last eight weeks the deaths from bronchitis have been more numerous than those from pneumonia; prior to this, pneumonia had the larger number of deaths.

A GENERAL Order has been issued by the Local Government Board making malaria, dysentery, trench fever, acute primary pneumonia, enteric fever, relapsing fever, and typhus fever notifiable as epidemic and infectious diseases under the Public Health Act. The Order, which applies to England and Wales, comes into force on March 1. "Dysentery" includes the amoebic and bacillary varieties of the disease, and "enteric fever" includes typhoid and paratyphoid fevers. In cases of malaria the medical officer may supply the patient with mosquito-netting if necessary, and provide for quinine treatment. A person suffering from dysentery may be required to discontinue any occupation connected with the preparation or handling of food or drink for human consumption. In cases of trench fever the medical

officer may require steps to be taken to obtain the complete destruction of lice on the person and clothing of every occupant of the building. The powers conferred under the new Order should be of considerable value in the control of the diseases named, some of which are almost new to Britain.

THE death of Mr. Stephen Reynolds at Sidmouth on February 14, in his thirty-eighth year, deprives the country of one whose work for British fisheries will not soon be forgotten. As adviser on inshore fisheries to the Development Commission, and resident inspector of fisheries for the south-western area, Mr. Reynolds's practical knowledge and sympathetic interest have been of the utmost value in developing the fisheries of Devon and Cornwall, and the gap caused by his death will be difficult to fill. Mr. Reynolds was a B.Sc. of the University of Manchester, and studied at the Ecole des Mines in Paris, but ill-health led him to change his plans for a career, and in 1903 he became associated with the Woolley Brothers, fishermen, at Sidmouth, with one of whom he worked for several years. He was thus brought into close contact with the problems of English fisheries and fishermen, whose interests he eloquently advocated in many articles and other writings. The movement in favour of the further development of inshore and longshore fisheries was initiated by Mr. Reynolds, practically as the result of a remarkable series of articles in the *Times* of February 7, 10, and 17, 1912. These were followed by the appointment of Mr. Cecil Harmsworth's committee consisting of members of Parliament, and then by the Departmental Committee on Inshore Fisheries, which reported in April, 1914, and of which Mr. Reynolds was a member. The outbreak of war prevented legislation based on the report, but special activities—those of the Fish Food and Motor Loan Committee—were directed to the increased productivity of the smaller fisheries, and Mr. Reynolds took a prominent part in the practical working out of the schemes promoted under the Board of Agriculture and Fisheries. He was a most zealous inspector, and knew his district and men as no one else did. Though not a scientific investigator himself, he was still alert to any discoveries, and keen to apply them. He was widely human in his outlook on the fishing industry, thinking far more of the fishermen than of the material side of their occupation. He possessed philosophic insight into the results of modern scientific investigation, and a year or two ago had developed a system which applied to mental evolution Bergson's *élan vital*. It is to be regretted that he was unable to publish this work.

LT.-COL. SIR MARK SYKES, Bart., M.P., whose death occurred in Paris on February 16, in his fortieth year, made a close study of peoples and customs of the East, and was the author of several notable works upon them. His latest volume, "The Caliph's Last Heritage," published in 1915, is largely concerned with his travels in Asiatic Turkey in 1906-13, and covers a wide field in Syria, Mesopotamia, Kurdistan, Asia Minor, Turkish Armenia, and a journey in Lower Egypt. His personal narratives are full of vigour and reality, often highly and truly picturesque, and constantly enlightening. Among Sir Mark Sykes's other works are "Through Five Turkish Provinces" and "Dar-ul-Islam: Five Mansions of the House of Othman." He mapped the north-west region of Mesopotamia and the desert south of Jerusalem, and in the course of his travels made road-maps of five thousand miles of road previously unmapped in Asiatic Turkey. His intimate knowledge of Eastern peoples was of great value, and many will regret that the Empire should be deprived in these times of a statesman of his understanding and capacity.

NO. 2573, VOL. 102]

SIR ROPER LETHBRIDGE, whose death at the age of seventy-nine is announced, occupied an important position in the Indian educational service, and, on his retirement, in English public life. After a distinguished career at Oxford he was appointed Government professor of political economy in the University of Calcutta, became secretary of the Education Commission in 1877, and then held the post of Political Agent. Sir Roper Lethbridge was best known in India as Press Commissioner for the supervision of the vernacular Press. He made a particular study of Imperial Preference as it affected India. On his return to England he became Member of Parliament for North Kensington, and held many public offices, among them president of the Devonshire Association and member of the Exeter Diocesan Board of Education. Sir Roper Lethbridge possessed a wide knowledge of Indian affairs and of English public life.

MR. THOMAS CLARKSON has been elected president of the Institution of Automobile Engineers for the ensuing year.

SIR OLIVER LODGE will deliver the Friday evening discourse at the Royal Institution on February 28 at 5.30 p.m. on "Ether and Matter." Owing to indisposition, Prof. J. A. McClelland will be unable to deliver his discourse on "Nuclei and Ions," as announced.

At the annual meeting of the Malacological Society of London, held on February 14, Mr. G. K. Gude was elected president in succession to Mr. J. R. le B. Tomlin. Mr. Gude has for the past nine years filled the office of hon. secretary of the society.

WE learn from *Science* that the National Geographic Society has presented the Hubbard gold medal to Mr. V. Stefansson, whose explorations during the last five and a half years in the Arctic regions have resulted in the reduction of the unknown polar regions of the western hemisphere by approximately 100,000 square miles.

THE death is announced, in his fortieth year, of Dr. W. Erskine Kellicott, professor of biology at the College of the City of New York. Dr. Kellicott had previously held for several years a similar chair at Goucher College, Baltimore, and from 1908 to 1917 was director of the Marine Biological Laboratory at Woods Hole, Massachusetts. He had written several books on evolution, embryology, and kindred subjects.

WE regret to note that the death of Mr. George Pauling is recorded in *Engineering* for February 14. Mr. Pauling was the senior partner in the firm of Pauling and Co., Ltd., which constructed the whole of the Rhodesian railways, in addition to many miles of line in other parts of South Africa. From 1894 to 1896 he served as Minister of Mines and Public Works in Rhodesia, and was also a member of the Executive Council.

THE following officers and council of the Royal Astronomical Society were elected at the annual general meeting on February 14:—*President*: Prof. A. Fowler. *Vice-Presidents*: Sir F. W. Dyson, Astronomer Royal, Dr. J. W. L. Glaisher, Major P. A. MacMahon, and Prof. H. F. Newall. *Treasurer*: Mr. E. B. Knobel. *Secretaries*: Dr. A. C. D. Crommelin and Rev. T. E. R. Phillips. *Foreign Secretary*: Prof. H. H. Turner. *Council*: Prof. A. E. Conrady, Dr. J. L. E. Dreyer, Prof. A. S. Eddington, Brig.-Gen. E. H. Hills, Mr. J. H. Jeans, Dr. Harold Jeffreys, Mr. H. S. Jones, Lt.-Col. H. G. Lyons, Mr. E. W. Maunder, Dr. W. H. Maw, Prof. J. W. Nicholson, and Lt.-Col. F. J. M. Stratton.

SIR ARTHUR EVANS has presented to the British Museum the magnificent collection of ancient British and other Celtic coins made by his father, the late Sir John Evans. This collection, containing more than 1700 pieces, has long been famous, and by its acquisition the museum collection, already strong, is placed in a position far in advance of any similar assemblage. In addition to the Celtic coins, the gift includes a valuable Gaulish and Iberian series. Sir Arthur Evans, in the letter in which he announces this splendid gift, explains that, "as regards the ultimate destination of the ancient British collection, my father, realising the claims that might weigh with me on another side, has left me absolute discretion. I feel, however, that in presenting the collection to your department I am fulfilling his most intimate wishes. It is, moreover, a fitting tribute to his memory that it should be permanently connected with the museum, to the welfare of which, as trustee, he had so long and actively devoted himself." The British Museum is to be congratulated on a splendid acquisition, which will always be associated with the eminent antiquaries by whom it has been preserved.

An article entitled "The Crucial Question of Patents," by Sir Robert Hadfield, published in the *Engineering Review* for December last, directs attention to the defects of our Patent Law and its practice, and, at the same time, makes certain recommendations with the object of improving matters. Whilst unanimity in opinions prevails in relation to the desirability of introducing some of the reforms proposed by Sir Robert Hadfield, different views exist as to certain of the other proposals. For instance, many inventors feel that the introduction into this country of the United States "file wrapper" system, which provides for the arguments of the examiners dealing with applications being open to inspection by the public generally, is likely to prove injurious to their interests, and may give an unfair advantage to capitalists in negotiations for the purchase of patent rights from inventors or their agents. Similarly, a great number of inventors do not view with favour any widening in the present functions of the Patent Office, so as to permit it to adjudicate, before making a grant, upon the relative merits of rival claims; yet it is only in this way that effect could satisfactorily be given to the proposal that the department which grants the protection should guarantee its validity. Again, as regards the proposal made to increase the original term of the patent from fourteen to seventeen years, having in view the fact that inventions are of many kinds, some being simple and requiring little expenditure to place on the market, whilst others are complex and require much time, skill, and capital to develop, the modification in the law likely best to meet the needs of the situation would seem to be that which would facilitate the grant of an extension for varying terms according to the particular merits of the invention and the nature of the difficulties which had been overcome by the inventor, the original term of fourteen years established by long usage being retained as at present. There is a consensus of opinion that the need for reform in our Patent Law is pressing, and that action in relation thereto should be taken by the Government without delay.

In the January issue of *Man*, Mr. J. Reid Moir describes two Late Bronze age urns found near Manningtree, in North Essex, and at Ipswich. That recently discovered in the latter locality contained fragments identified by Prof. Keith as calcined human bones. Both these specimens were obviously

cinerary urns. They are distinguished by a peculiar form of decoration, a series of pittings all over the surface, which seems to be characteristic of the type of a similar kind found in Essex.

CAPT. A. T. H. NISBET gives a description of the conditions found in amputation stumps by means of X-ray examination, removal of which is necessary before an artificial limb can be fitted. These include abscesses, pieces of dead bone, inflamed nerve-ends, inflammation and inflammatory outgrowths of the bone, and adherent scars. For the examination he recommends the use of a moderately soft X-ray tube, as it brings out the abnormalities more clearly than other forms of tube (*Archives of Radiology and Electrotherapy*, No. 222, January, 1919, p. 237).

THE Hunterian oration was delivered on February 14 at the Royal College of Surgeons by Major-Gen. Sir Anthony Bowlby. "Surgery in the Field" formed the subject of the oration, and it was shown how improved methods had been introduced with consequent saving of life. Thus in the earlier stages of the war gas-gangrene was prevalent, but in 1917-18 out of 25,000 patients at the base hospitals only 84 had serious gas-gangrene. Each year of the war had seen better surgical methods, better results, lessened suffering, and the saving of lives and limbs in constantly increasing numbers.

Symons's Meteorological Magazine for January is the index number for the preceding year; it completes the fifty-third volume. A short notice is given of the rainfall of 1918. In addition to the usual matter comprised, including the map of the Thames Valley rainfall, there is an article on "The Congress of Scandinavian Geophysicists in Gothenburg, August 28 to 31, 1918," by Dr. Hans Pettersson. It is stated that a highly representative congress of about fifty Danish, Norwegian, and Swedish geophysicists met. Prof. Hildebrandsson, of Upsala, was elected president, and Director Ryden, of Denmark, Prof. Bjerknes, of Norway, and Prof. Nordenskjöld, of Sweden, were chosen as vice-presidents, Dr. Hans Pettersson being general secretary. Amongst the papers read at the general and sectional meetings were "Weather Forecasting," by Prof. Bjerknes, describing a new method of short-range prognostics for agricultural purposes in West Norway, based on synoptic observations chiefly of the wind, the percentage of the correct forecasts being stated as between 85 and 90. There were also papers on "Hydrographical Observations on the West Coast of Greenland," on "Some Observations of the Aurora Borealis," and on "Weather Forecasting for Airmen." In all, thirty papers were read. It is intended to call together a second congress in due course. The same issue also contains the conclusion of a series of articles on "Work and Water-power," by Dr. H. R. Mill. The statistics accumulated by the Rainfall Organisation are necessarily of high value in determining requisite factors. Dr. Mill says:—"In this country it may be said, roughly, that the proportion of the natural water-power which it would pay to utilise depends on the price of coal. As the cost of fuel rises, it becomes worth while to draw on sources of water-power which, from remoteness or cost of works, could never pay while coal is cheap."

IN connection with a review in *NATURE* of January 9 of Dr. Silberstein's "Simplified Method of Tracing Rays through any Optical System," the author of the book has written to make an offer that should appeal to persons engaged in optical design. The reviewer suggested that there was some doubt as to the prac-

tical utility of the vectorial method of ray tracing, and expressed the desirability of further information on this point. Dr. Silberstein writes:—"... In order to help the spread and the easy handling of the vector method, in the spirit of Dr. Brodetsky's closing sentence, I shall be glad to do personally all in my power to remove doubts and apparent difficulties. In this respect half an hour's personal conversation is certain to be more efficient than many hours dedicated to the writing of notes or papers for publication. The former has, moreover, the obvious advantage of being adaptable to the individual needs of the questioner. In order to meet, in part at least, these needs, I gladly offer myself to give free information on the subject in question to everybody who will care to call personally (not by letter) at 4 Anson Road, Cricklewood, London, N.W.2, where I shall be available for that purpose on every Friday from 5.30 until 7.30 p.m." We have much pleasure in making public Dr. Silberstein's offer, and feel that some of our readers will gladly avail themselves of this unique opportunity of being initiated into the practical application of vector methods by a master of the subject. At the same time we suggest that Dr. Silberstein would be doing a service to a wider circle of those interested in optical work if he were to publish one or two detailed computations based on his formulæ.

THE following works are in the press for publication by the Carnegie Institution of Washington:—"The Duration of the Several Mitotic Stages in the Root-tip Cells of the Onion," H. H. Laughlin; "Contributions to the Genetics of the *Drosophila melanogaster*," T. H. Morgan, C. B. Bridges, and A. H. Sturtevant; "The Genetic and Operative Evidence Relating to Secondary Sexual Characters," T. H. Morgan; and "Studies of Heredity in Rabbits, Rats, and Mice," W. E. Castle.

OUR ASTRONOMICAL COLUMN.

LUMINOSITIES AND DISTANCES OF CEPHEID VARIABLES.—In continuation of his important studies of stellar clusters, Dr. Harlow Shapley has investigated the luminosities, distances, and distribution of the Cepheid variables (*Astrophys. Journ.*, vol. xlviii., p. 279). Restricting the discussion to variables with definitely determined periods of less than forty days, there are forty-five stars which are of the "cluster" type and ninety-four ordinary Cepheids with periods greater than a day. The absolute magnitudes and parallaxes have been determined by means of the luminosity-period relation, with an average probable error estimated at 20 per cent. The cluster-type variables are found to have absolute luminosities a little more than one hundred times the brightness of the sun, while the ordinary Cepheids range from two hundred to ten thousand times that of the sun. Fewer than one-third of the stars have parallaxes greater than a thousandth of a second, and the most distant Cepheids now known are nearly 20,000 light-years from the sun. While the ordinary Cepheids are strongly concentrated towards the galactic plane, the cluster-type variables are indifferent to that plane. The wide dispersion of the latter may probably be accounted for by their relatively high velocities in space.

RADIAL VELOCITIES OF 119 STARS.—A preliminary account of the radial velocities of 119 stars, as determined at the Cape Observatory, has been given by Dr. J. Lunt (*Astrophys. Journ.*, vol. xlviii., p. 261). The number of these stars which probably have constant velocities is seventy-six, while the remaining forty-three are either known or suspected spectroscopic binaries. Eighteen of the stars in the first

class were very frequently observed in connection with the spectroscopic determination of the solar parallax, the total number of plates obtained for them being 552. The following are among the results for some of the bright stars, as compared with the values obtained at the Lick Observatory:—

Star	Radial velocity	
	Cape km.	Lick km.
α Arietis ...	... -15.3	-14.0
α Tauri ...	... +54.0	+55.1
α Can. Min. ...	... -3.6	-3.5
β Geminorum ...	... +3.2	+3.9
α Hydræ ...	... -4.6	-3.5
ϵ Virginis ...	... -14.3	-13.2
α Boötis ...	... -5.3	-3.9
α Serpentis ...	... +2.9	+3.4
λ Sagittarii ...	... -43.4	-43.1
α Aquarii ...	... +6.8	+7.5

Approach to the sun is indicated by a *minus* and recession by a *plus* sign.

"ANUARIO DEL OBSERVATORIO DE MADRID."—This useful annual for 1919 contains all the customary astronomical data, including the times of rising and setting of the moon (which might with great advantage be inserted in our own Nautical Almanac). There are also several essays; one, by A. Vela, gives a *résumé* of researches on the temperature of the sun's photosphere, concluding in favour of 7000°. C. Puente shows how to find time and latitude from the observed altitudes of two stars; this can be solved graphically by the well-known Sumner method. Dr. F. Iñiguez, the director of the observatory, gives an interesting monograph on Nova Aquilæ, with photographs of the spectrum from June 9 to September 4, and a light-curve, which appears to show that the period of variation was about twelve days in July, but more than a month in August and September.

Very full details are given of the sun-spots and prominences observed at Madrid in 1917; also the results of observations of solar radiation between 1917 September 1 and 1918 August 31.

The remainder of the volume is occupied by the meteorological observations of 1917.

THE CHEMISTRY OF SEAWEEDS.

THE scarcity of potash compounds, of iodine, and of foodstuffs caused by the great war has directed increased attention to seaweeds during the past four years, and to the possible extension of the use of these as a source of such materials. For some years before the war the giant seaweeds of the Pacific Coast were the subject of systematic investigation in the United States, especially with a view to their utilisation as a source of potash. After the outbreak of war, when many countries, including the United States and the countries allied against Germany, were cut off from their usual supplies of potash compounds from the German mines, examination began to be made of all sources from which potash might be obtained independently of Germany, and seaweeds came in for an increased amount of attention.

If we consider the great supplies of seaweed which are available, especially in the case of an insular country like our own, with a long and deeply indented coast-line, it is remarkable how little has been done, either from the purely scientific or from the industrial point of view, for the thorough and systematic exploration of the chemistry of seaweeds. A criticism by Prof. C. Sauvageau,¹ of Bordeaux, of

¹ "Réflexions sur les Analyses Chimiques d'Algues Marines." *Revue Générale des Sciences*, 29^e Année, No. 19, October, 1918.